



INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 25116	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/12059	International filing date (day/month/year) 24.10.2003	Priority date (day/month/year) 03.12.2002
International Patent Classification (IPC) or both national classification and IPC F02M37/22		
Applicant UFI FILTERS S.P.A.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 2 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand  02.06.2004	Date of completion of this report  20.07.2004	
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Van Zoest, A  Telephone No. +31 70 340-3796  	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/12059

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-5 as originally filed

**Claims, Numbers**

1-5 received on 02.06.2004 with letter of 31.05.2004

**Drawings, Sheets**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-5
	No: Claims	
Inventive step (IS)	Yes: Claims	1-5
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-5
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following document D: US-A-4.580.542

The document **D** is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

A fuel filter for diesel engines with high pressure direct injection of common rail type and the like, comprising an outer casing provided with a fuel inlet conduit (18) and an outlet conduit (19) and internally housing a filter means (15) said casing comprising an upper chamber for containing said filter means, a lower chamber (32) communicating with said upper chamber to collect the water which said filter means (15) separates from the fuel and means (23) for measuring the level of the water collected in the lower chamber (32) (see column 2, lines 1-68; figure 1).

The subject-matter of claim 1 differs from this known fuel filter in that the means for measuring the water level in the chamber of the fuel filter according to the invention comprises a temperature sensor for generating an electric signal being fed to an electronic card by two conductors.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as to make a compact arrangement for the fuel sensor in the filter housing.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT), because no suggestion can be found in the closest prior art document D, nor in the other cited documents which would suggest the skilled person the advantage of integrating a temp. sensor into the water level sensor of doc. D and if he would do so it would require considerable effort to adapt the water level sensor acc. to doc. D, which would go beyond the ability of his skills.

Claims 2-5 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

## CLAIMS

1. A fuel filter for diesel engines with high pressure direct injection of common rail type and the like, comprising an outer casing provided with a fuel inlet conduit (3) and an outlet conduit (4), and internally housing a filter means, said casing comprising an upper chamber (6) for containing said filter means, a lower chamber (7) communicating with said upper chamber to collect the water which said filter means (5) separates from the fuel, and means (8) for measuring the level of the water collected in the lower chamber (7), characterised in that said means for measuring the water level in the chamber (7) comprise a temperature sensor for generating an electrical signal, said signal being fed to an electronic card by two conductors.
- 2 A filter as claimed in claim 1 characterised in that said level sensor means comprises a float positioned in the collection chamber and having a specific gravity between the specific gravity of water and that of the fuel, and a float guide stem in the interior of which there is positioned a magnetic field sensor connected electrically to said electronic card by two conductors, said temperature sensor means being positioned in the interior of said stem in proximity to its upper free end.
- 3 A filter as claimed in claim 2 characterised in that one of the conductors connecting said temperature sensor means to said card is also connected to said magnetic field sensor.

4 A filter as claimed in claim 1, characterised in that said temperature sensor is of NTC type.

5 A filter as claimed in claim 1, characterised in that said temperature  
5 sensor is embedded in a layer of conductive resin.